REMARKS

Claims 1-24 are pending in this application. By this Amendment, Applicants CANCEL claims 25-29 without prejudice or disclaimer of the subject matter contained therein.

Applicants greatly appreciate the Examiner's indication that claims 10-24 are allowed.

Applicants affirm election of Group I, including claims 1-24. Further, Applicants reserve the right to file a Divisional Application to pursue Group II, including claims 25-29.

Claims 1-3, 6, and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by Fujimoto et al. (U.S. 5,953,433). And claims 1-9 were rejected under 35 U.S.C. § 102(b) as being anticipated by Tsutsumi et al. (U.S. 5,999,068). Applicants respectfully traverse these rejections.

Claim 1 recites:

> "A surface acoustic wave device using a Shear Horizontal type surface acoustic wave, comprising:
> a quartz substrate; and
> at least one interdigital transducer disposed on the quartz substrate and including electrodes having a larger mass-load effect than that of aluminum;
> **wherein a metallization ratio 'd' and a normalized film thickness h/λ of the at least one interdigital transducer are within specific ranges such that a ripple caused by a transversal mode wave is about 0.5 dB or less, where 'λ' is the wavelength of the surface acoustic wave and 'h' is the film thickness of the electrodes of the at least one interdigital transducer.**" (emphasis added)

Applicants' claim 1 recites the features of "wherein a metallization ratio "d" and "a normalized film thickness h/λ of the at least one interdigital transducer are within specific ranges such that a ripple caused by a transversal mode wave is about 0.5 dB or less, where 'λ' is the wavelength of the surface acoustic wave and 'h' is the film thickness of the electrodes of the at least one interdigital transducer". With the improved combination and arrangement of elements recited in the present claimed

wave (see, for example, the paragraph bridging pages 4 and 5 of the originally filed Specification).

The Examiner has alleged that because Fujimoto et al. and Tsutsumi et al. show the structural features of the present claimed invention, Fujimoto et al. and Tsutsumi et al. are "regarded as meeting the functional requirements specified by Applicants" (the paragraph bridging pages 2 and 3 and the last paragraph on page 3 of the Office Action). Apparently, the Examiner has interpreted the features of "wherein a metallization ratio 'd' and a normalized film thickness h/λ of the at least one interdigital transducer are within specific ranges such that a ripple caused by a transversal mode wave is about 0.5 dB or less, where 'λ' is the wavelength of the surface acoustic wave and 'h' is the film thickness of the electrodes of the at least one interdigital transducer" recited in Applicants' claim 1 as being functional. The Examiner has clearly mischaracterized these features. The features of a metallization ratio "d" and a normalized film thickness h/λ recited in Applicants' claim 1 are clearly **structural** and **NOT functional** in nature, as they clearly define physical characteristics of a structural element recited in the claim.

Neither Fujimoto et al. nor Tsutsumi et al. teaches or suggests the structural features of "wherein a metallization ratio 'd' and a normalized film thickness h/λ of the at least one interdigital transducer are within specific ranges such that a ripple caused by a transversal mode wave is about 0.5 dB or less, where 'λ' is the wavelength of the surface acoustic wave and 'h' is the film thickness of the electrodes of the at least one interdigital transducer" recited in Applicants' claim 1.

In fact, Fujimoto et al. and Tsutsumi et al. fail to even recognize that the metallization ratio and the normalized film thickness of at least one interdigital transducer could or should be set within any specific range, and certainly fail to teach or suggest the specific range of values recited in Applicants' claim 1.

The Examiner is reminded that a "claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a

single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Examiner is reminded that prior art rejections must be based on evidence made of record. Graham v. John Deere Co., 383 U.S. 117 (1966). The Examiner is hereby requested to cite a reference in support of his position that the feature of "a metallization ratio "d" and "a normalized film thickness h/λ of the at least one interdigital transducer are within specific ranges such that a ripple caused by a transversal mode wave is about 0.5 dB or less, where 'λ' is the wavelength of the surface acoustic wave and 'h' is the film thickness of the electrodes of the at least one interdigital transducer," as recited in Applicants' claim 1, was well known at the time of Applicants' invention. If the rejection is based on facts within the personal knowledge of the Examiner, the data should be supported as specifically as possible and the rejection must be supported by an affidavit from the Examiner, which would be subject to contradiction or explanation by affidavit of Applicants or other persons. See 37 C.F.R. § 1.104(d)(2).

Accordingly, Applicants respectfully submit that Fujimoto et al. and Tsutsumi et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in claim 1 of the present application. Claims 2-9 depending on claim 1 are allowable for at least the reasons that claim 1 is allowable. Claims 10-24 are allowed as indicated by the Examiner.

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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NEW COMPLETE CLAIM SET

1. (original) A surface acoustic wave device using a Shear Horizontal type surface acoustic wave, comprising:

a quartz substrate; and

at least one interdigital transducer disposed on the quartz substrate and including electrodes having a larger mass-load effect than that of aluminum;

wherein a metallization ratio "d" and a normalized film thickness h/λ of the at least one interdigital transducer are within specific ranges such that a ripple caused by a transversal mode wave is about 0.5 dB or less, where "λ" is the wavelength of the surface acoustic wave and "h" is the film thickness of the electrodes of the at least one interdigital transducer.

2. (original) A surface acoustic wave device according to Claim 1, wherein the at least one interdigital transducer includes at least one electrode layer made from a metal having a larger mass than that of aluminum.

3. (original) A surface acoustic wave device according to Claim 1, wherein the at least one interdigital transducer is made from a single metal having a larger mass than that of aluminum.

4. (original) A surface acoustic wave device according to Claim 1, further comprising a plurality of the interdigital transducers arranged to constitute a longitudinally coupled resonator filter.

5. (original) A surface acoustic wave device according to Claim 4, further comprising a plurality of the longitudinally coupled resonator filters, which are connected in a cascade arrangement in at least two stages.

6. (original) A surface acoustic wave device according to Claim 1, wherein the at least one interdigital transducer is arranged on the quartz substrate to constitute a one-port surface acoustic wave resonator.

7. (original) A surface acoustic wave device according to Claim 1, wherein a plurality of the interdigital transducers are disposed on the quartz substrate;

each of the plurality of interdigital transducers constitutes a one-port surface acoustic wave resonator; and

the plurality of the interdigital transducers are connected to constitute a ladder-type filter on the quartz substrate.

8. (original) A surface acoustic wave device according to Claim 1, wherein a plurality of the interdigital transducers are disposed on the quartz substrate;

each of the plurality of interdigital transducers constitutes a one-port surface acoustic wave resonator; and

the plurality of the interdigital transducers are connected to constitute a lattice-type filter on the quartz substrate.

9. (original) A communication device comprising a surface acoustic wave device according to Claim 1.

10. (original) A surface acoustic wave device using a Shear Horizontal type surface acoustic wave, comprising:

a quartz substrate; and

at least one interdigital transducer disposed on the quartz substrate and made from tantalum;

wherein a normalized film thickness h/λ of the at least one interdigital transducer is within a range of about $0.6d + 1.65$ to about $0.6d + 1.81$, where "d" is the metallization

ratio of the interdigital transducer, "λ" is the wavelength of the surface acoustic wave, and "h" is the film thickness of the electrodes of the at least one interdigital transducer.

11. (original) A surface acoustic wave device according to Claim 10, further comprising a plurality of the interdigital transducers arranged to constitute a longitudinally coupled resonator filter.

12. (original) A surface acoustic wave device according to Claim 10, further comprising a plurality of the longitudinally coupled resonator filters, which are connected in a cascade arrangement in at least two stages.

13. (original) A surface acoustic wave device according to Claim 10, wherein the at least one interdigital transducer is arranged on the quartz substrate to constitute a one-port surface acoustic wave resonator.

14. (original) A surface acoustic wave device according to Claim 10, wherein a plurality of the interdigital transducers are disposed on the quartz substrate;

each of the plurality of interdigital transducers constitutes a one-port surface acoustic wave resonator; and

the plurality of the interdigital transducers are connected to constitute a ladder-type filter on the quartz substrate.

15. (original) A surface acoustic wave device according to Claim 10, wherein a plurality of the interdigital transducers are disposed on the quartz substrate;

each of the plurality of interdigital transducers constitutes a one-port surface acoustic wave resonator; and

the plurality of the interdigital transducers are connected to constitute a lattice-type filter on the quartz substrate.

16. (original) A communication device comprising a surface acoustic wave device according to Claim 10.

17. (original) A surface acoustic wave device using a Shear Horizontal type surface acoustic wave, comprising:

a quartz substrate; and

at least one interdigital transducer disposed on the quartz substrate and made from tungsten;

wherein a normalized film thickness h/λ of the at least one interdigital transducer is within a range of about $0.6d + 0.85$ to about $0.6d + 1.30$, where "d" is the metallization ratio of the interdigital transducer, "λ" is the wavelength of the surface acoustic wave, and "h" is the film thickness of the electrodes of the at least one interdigital transducer.

18. (original) A surface acoustic wave device according to Claim 17, wherein the normalized film thickness h/λ is within a range of about $0.6d + 1.00$ to about $0.6d + 1.23$.

19. (original) A surface acoustic wave device according to Claim 17, further comprising a plurality of the interdigital transducers arranged to constitute a longitudinally coupled resonator filter.

20. (original) A surface acoustic wave device according to Claim 19, further comprising a plurality of the longitudinally coupled resonator filters, which are connected in a cascade arrangement in at least two stages.

21. (original) A surface acoustic wave device according to Claim 17, wherein the at least one interdigital transducer is arranged on the quartz substrate to constitute a

one-port surface acoustic wave resonator.

22. (original) A surface acoustic wave device according to Claim 17, wherein a plurality of the interdigital transducers are disposed on the quartz substrate;

each of the plurality of interdigital transducers constitutes a one-port surface acoustic wave resonator; and

the plurality of the interdigital transducers are connected to constitute a ladder-type filter on the quartz substrate.

23. (original) A surface acoustic wave device according to Claim 17, wherein a plurality of the interdigital transducers are disposed on the quartz substrate;

each of the plurality of interdigital transducers constitutes a one-port surface acoustic wave resonator; and

the plurality of the interdigital transducers are connected to constitute a lattice-type filter on the quartz substrate.

24. (original) A communication device comprising a surface acoustic wave device according to Claim 17.

25. (cancelled)

26. (cancelled)

27. (cancelled)

28. (cancelled)

29. (cancelled)